UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
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BOSTON, MASSACHUSETTS 02114-2023

June 2, 2004

Curtis Frye
U.S. Department of the Navy
Naval Facilities Engineering Command
Northern Division
10 Industrial Highway
Code 1823, Mail Stop 82
Lester, PA 19113-2090

Re: Study Area Screening Evaluation for the NUSC Disposal Area (Study Area 08)

Dear Mr. Frye:

EPA reviewed the *Study Area Screening Evaluation for NUSC Disposal Area, Naval Underwater Warfare Center*, dated April 2004. EPA agrees with the report conclusion regarding the need for a remedial investigation with a baseline human and ecological risk assessment. Detailed comments are provided in Attachment A.

EPA is concerned that the evaluation runs afoul of our guidance and policy. Although the report states that this is not the risk assessment, it also states that the results of this evaluation will be used in the RI and HHRA. The procedure needs to be correct and follow EPA policy so that results and data for the HHRA and RI will be useable.

While EPA supports early action (*i.e.*, removals) to remove contamination from the site, I am concerned that such an action may not address all site risks and therefore will not enable us to close out the site under Superfund. I understand that the SASE was not intended to thoroughly characterize the nature and extent of contamination at the NUSC Disposal Area. EPA believes that further characterization of the site (see specific comments) is necessary regardless of whether the Navy opts to pursue a removal action or complete a remedial investigation.

Section 8 (Ecological Risk Assessment) uses low frequency of detection as a reason to remove numerous chemicals from further consideration. EPA generally does not consider frequency of detection as a valid parameter for screening except in cases where there are at least 20 samples within an area of interest. This is because 5% frequency of detection is considered a reasonable cut-off, and this threshold has no meaning unless a minimum of 20 samples are collected within a given medium and area. In an area of unknown fill with patchy contamination, chemicals with a high potential to bioaccumulate such as PCBs and DDT (or their breakdown products) should not be removed at the screening step on this basis.

While a planned removal of fill material may be a useful step, EPA believes that a remedial investigation is needed to more fully address nature and extent of contamination, as there is

contamination present that may not be addressed in any way through removal. For example, the presence of PCBs in sediments near the pond discharge should be connected with a source, and further sampling is needed to determine the extent of PCB contamination within the pond.

The objectives for the screening process in the SASE are not clear. Throughout most of the SASE, it is stated that this screening document is used to select a list of COPCs that will be used for the quantitative human health risk assessment or as part of the Remedial Investigation (page 1-1). Pages 7-6 through 7-8 also mention the use of detection frequency in the screening process and imply that this selection or omission of chemicals from this process would be used for a quantitative risk assessment. However, on page 7-1, it is also stated that the objective of this screening evaluation is *to assess the need* to perform a full, quantitative human health risk assessment for the site. This statement implies that the results from this evaluation will be used to determine whether there will be a need for a full-scale risk assessment, not to be used in a risk assessment.

If the COPCs resulted from the SASE will be used in the human health risk assessment and the remedial investigation, the screening process needs to follow EPA guidance on screening COPCs. EPA Region I's policy is to use EPA Region IX's residential preliminary remediation goals (PRGs) and other risk-based screening standards for screening in all media. It is not EPA's policy to use industrial PRGs for screening as mentioned on page 4-3 and Section 7.2 and practiced throughout the SASE. EPA's uses a conservative approach of future residential scenario when there is no restriction of future residential or recreational development at the site. Also, since off-site residents will be evaluated as potential receptors, it is more appropriate to use screening standards for residents. For groundwater and surface water, EPA's policy is also to use risk-based screening values and not just MCLs. Therefore, EPA Region IX's residential tap water values, MCLs, and Ambient Water Quality Criteria should all be used for screening groundwater and surface water.

The use of the terminology COPCs is misleading in the SASE. Based on EPA Risk Assessment Guidance for Superfund (RAGS) Part A dated December 1989, COPCs are those chemicals of potential concern that remain after the screening process and will be further evaluated in a quantitative human health risk assessment The COPCs in the SASE do not result from a correct and acceptable EPA screening procedure for further quantitative risk assessment and therefore should not be called COPCs.

It is EPA Region I's policy NOT to use the 95% UCLs of the mean concentrations for selecting COPCs as mentioned on page 7-3 for screening metals and in Section 7.3. Please refer to EPA Region I's Risk Update #3 dated August 1995. It is our policy to use the maximum detected concentrations only for screening for COPCs.

EPC is the concentration at the point of potential contact with the contaminated medium. EPCs should be the same values for both RME and CT scenarios combined with different exposure parameters such as contact rate, exposure frequency, and exposure duration. CT exposure

estimates will be calculated by combining the EPCs with the CT exposure parameters in Attachment 2 of the Risk Update. RME exposure estimates will be calculated by combining the same EPCs with the high end exposure parameters in Attachment 3 of the Risk Update. Tables 7-3.1 through 7-3.5 need to be corrected to follow this procedure.

I look forward to working with you and the Rhode Island Department of Environmental Management toward the cleanup of the NUSC Disposal Area. Please do not hesitate to contact me at (617) 918-1385 should you have any questions.

Sincerely,

Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc: Paul Kulpa, RIDEM, Providence, RI
Cornelia Mueller, NETC, Newport, RI
Chau Vu, USEPA, Boston, MA
Bart Hoskins, USEPA, Boston, MA
Jennifer Stump, Gannet Fleming, Harrisburg, PA
Steven Parker, Tetra Tech-NUS, Wilmington, MA

ATTACHMENT A

Page	Comment
p. 1-4	If 1,1,1-trichloroethane (1,1,1-TCA) is detected in groundwater, it is very likely that 1,4-dioxane might also be found in groundwater. 1,4-dioxane is a compound that is used both as a solvent and as a stabilizer for other chlorinated solvents such as 1,1,1-TCA. Recently that methods to detect 1,4-Dioxane at low concentrations have become available. It is essential to analyze for 1,4-dioxane to determine whether it exists at the site.
p. 2-3	For human health risk evaluation purposes, please specify that only sediment samples under a maximum of 1 foot of standing water will be considered as sediment samples for the risk evaluation. EPA will consider sediment samples of 0 to 6 inches deep surface sediment for human exposures.
p. 2-3, §2.3.1 & Figure 2-2	The sediment and surface water sampling locations do not appear to be well placed for identifying contamination resulting from run-off or leaching from the fill areas indicated on Figure 1-3. There are no locations within the un-named stream, which passes between two areas of fill. Also, there are no samples where the un-named stream and Deerfield Creek discharge to Deerfield Pond. Sample SD-05 appears to be located far away from either stream. Is this a surveying/mapping artifact? or is there a water body not indicated in the figure? Lastly, the two samples within Deerfield Pond are located far from the most likely contaminant source areas. Please explain how these locations were selected, and why most of the sample locations are far from likely source areas. EPA is concerned that the sample placement will likely miss contamination within the water bodies, and represents a data gap that will have to be addressed in subsequent sampling, with follow-up screening of surface water and sediment data to refine the list of chemicals of potential concern.
p 5-9, §5.2.4.3	The last paragraph states that lead was not detected at elevated concentrations in groundwater or surface water. This statement is incorrect, as lead was detected at 12.4 ug/L in surface water sample SW-03. Please correct this section accordingly.
p. 5-12, §5.4	The contaminant fate and transport discussion for surface water is not consistent with information presented in other portions of the SASE. Page 5-12 states that no pesticides were detected in any surface water sample. The ecological risk assessment Table 8-4 presents a 4/9 frequency of detection for dieldrin and 1/9 frequency of detection for DDE and DDT. Appendix F4 is consistent with the pesticide detections presented in the ecological risk assessment. Also, DDT is a contaminant exceeding the AWQC in surface water. Please revise page 5-12.

p. 6-1 It is inappropriate to use background chemical levels for screening COPCs and evaluate site contaminants. Background information, when available, can be compared with site information to determine whether risks are from the site.

p. 7-1, §7.0 The screening human health risk evaluation concluded that a baseline risk assessment will be performed at this site. The following comments should be considered when planning the baseline human health risk assessment.

Unless a restriction preventing future residential development is proposed, the baseline risk assessment should include evaluation of residential receptors as potential "worst case" scenario.

Based on soil gas surveys and groundwater contaminants of concern, vapor intrusion should be added to the exposure pathways to be evaluated in the baseline human health risk assessment. Vapor intrusion exposure is relevant to current workers and offsite residents.

Selection of Chemicals of Potential Concern (COPCs) should be performed in accordance with EPA Region 1 guidance including:

- the use of maximum site concentrations (versus the use of exposure point concentrations) as screening concentrations, and;
- the use of residential (versus industrial) Region 9 PRGs for screening.

p. 7-4 Use of 1,000 μg/kg as the screening value for total Aroclors is not appropriate. The value of 220 μg/kg should be used for screening individual Aroclors or total PCBs except for Aroclor 1016, which would be 3,900 μg/kg for non-cancer effects, as indicated in the aforementioned Region IX's PRG tables.

p. 7-5 As mentioned earlier, EPA's policy is to use the maximum detected concentrations, not the calculated 95% UCLs, as the screening concentrations for COPC selection. The calculated 95% UCLs would be used as the EPCs for RME or CT scenarios when the database allows such calculation. Please refer to EPA Region I's Risk Update #3 dated August 1995 for the screening procedure. The Risk Update requires use of the maximum detected concentrations for screening.

There is an exception for groundwater regarding the use of 95% UCL. For groundwater, the 95% UCLs are not used as EPCs and only maximum and arithmetic mean concentrations are used. Please refer to EPA Region I's Risk Update #2 dated August 1994 for using the maximum detected concentration of each contaminant in any well or the highest average concentration of each contaminant across several rounds in the same well for calculating the RME

exposure and using the average plume concentration in calculating the CT exposure.

p.7-6, §7.4 The fourth paragraph in this section references "chemical-specific representative concentration to screening concentration ratios" that were used to determine which chemicals are risk-drivers. Please present these ratios in a table.

p.7-9, §7.5 The first paragraph states that the use of maximum concentrations "may have" resulted in the selection of additional COPCs. This statement is misleading. In fact, Section 7.2 identifies specific contaminants that would have been selected as COPCs had the maximum concentrations been used in the screening. The Uncertainty Section should be revised to discuss the impacts of using a less conservative screening procedure.

p.9-4, §9.1.3 The text states, "a study to determine background conditions for metals at this site is needed, but has not yet been conducted." Is the Work Plan for Background Soil Investigation for NUWC Disposal Area, SA-08 dated December 2003 being implemented?

p. 9-5 If a human health risk assessment will be performed, EPA expects a more complete and detailed conceptual site model as instructed in EPA RAGS Part A.

p.9-6, §9.3 The conclusion section does not specify the test pit observations of 55-gallon drums, tar-like material and pressurized spray cans. The conclusion simply states "fill." Page 9-2 indicates that "fill" is described in the document as including asphalt, brick, coal ash, corroded 55-gallon drums, 5-gallon containers, *etc.* The Section 9.3 conclusion would be stronger if the test pit observations and the definition of "fill" as presented on page 9-2 were included.

Tables 1, 5, & 6 Please explain why these tables are not in the SASE or renumber the tables in the report as appropriate.

Tables 4 & 7 Please revise these tables so that they follow EPA's screening procedure and include the appropriate residential risk-based screening values and concentrations used for screening.

Table 7-1 Please note that this table (selection exposure pathways) needs to be presented in more detail in the human health risk assessment.

Table 8-5 The meadow vole NOAEL based hazard quotient for mercury presented in Table 8-5 could not be confirmed. Please check the calculations and revise as necessary.

Figure 9-2 The conceptual site model specifies fill containing chemical contaminants as the source. While this is true given the definition of fill used in the SASE, it may provide a better conceptual picture to include fill with buried corroded drums, pressurized cans, and tar-like substance as the source.

Appendix G Only the inputs to the bobwhite quail terrestrial wildlife model are presented in this Appendix. The inputs (*i.e.* vegetation concentration, dose) for each of the ecological receptor food chain models should be presented.